WHAT IS CLAIMED IS:

1. A heat-transfer label, said heat-transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a heat-activatable adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of heat and pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating having a total surface energy of about 25 to 35 mN/m, of which about 0.1 to 4 mN/m is polar surface energy.

2. The heat-transfer label as claimed in claim 1 wherein said first release coating has a total surface energy of about 30 mN/m, of which about 1.3 mN/m.

3. The heat-transfer label as claimed in claim 1 wherein said first release coating is in direct contact with said transfer portion.

4. The heat-transfer label as claimed in claim 1 wherein said transfer portion further comprises a protective lacquer layer, said ink design layer being positioned over said protective lacquer layer, said first release coating being in direct contact with said protective lacquer layer.

5. The heat-transfer label as claimed in claim 1 wherein said first release coating has a thickness of about 0.01 to 10 microns.

6. The heat-transfer label as claimed in claim 5 wherein said first release coating has a thickness of about 0.02 to1 micron.

7. The heat-transfer label as claimed in claim 6 wherein said first release coating has a thickness of about 0.1 micron.

8. The heat-transfer label as claimed in claim 1 wherein said first release coating has a carbon content (by atomic %) of about 90 to 99.9% and an oxygen content (by atomic %) of about 0.1 to 10%, as measured by X-ray photoelectron spectroscopy.

9. The heat-transfer label as claimed in claim 8 wherein said first release coating has a carbon content (by atomic %) of about 97% and an oxygen content (by atomic %) of about 3%, as measured by X-ray photoelectron spectroscopy.

10. The heat-transfer label as claimed in claim 1 wherein said first release coating exhibits a release value of about 70-350 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

11. The heat-transfer label as claimed in claim 10 wherein said first release coating exhibits a release value of about 125-200 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

12. The heat-transfer label as claimed in claim 1 wherein said carrier is made of a polymer selected from the group consisting of polyesters, polyolefins and polyamides.

13. The heat-transfer label as claimed in claim 1 wherein said carrier is made of a polymer selected from the group consisting of polyethylene terephthalate and polyethylene napthylene.

14. The heat-transfer label as claimed in claim 1 wherein said carrier is made of a polymer selected from the group consisting of polyethylene and polypropylene.

15. The heat-transfer label as claimed in claim 12 wherein said first release coating is made by (i) applying to the carrier in its amorphous or semi-oriented state a composition comprising (a) a functionalized α-olefin containing copolymer and (B) a crosslinking agent; and (ii) reacting said composition with the carrier during uniaxial or biaxial stretching and heat setting.

16. The heat-transfer label as claimed in claim 15 wherein said functionalized α-olefin containing copolymer is an acid functionalized α-olefin containing copolymer.

17. The heat-transfer label as claimed in claim 16 wherein said acid functionalized α-olefin containing copolymer is selected from the group consisting of ethylene/acrylic acid copolymers; ethylene/methacrylic acid copolymers; ethylene/vinylacetate/acrylic acid terpolymers; ethylene/methacrylamide copolymers; ethylene/glycidyl methacrylate copolymers; ethylene/dimethylaminoethyl methacrylate copolymers; ethylene/2-hydroxyethyl acrylate copolymers; and propylene/acrylic acid copolymers.

18. The heat-transfer label as claimed in claim 15 wherein said crosslinking agent is selected from the group consisting of amino formaldehyde resins, polyvalent metal salts, isocyanates, blocked isocyanates, epoxy resins and polyfunctional aziridines.

19. The heat-transfer label as claimed in claim 1 wherein said heat-activatable adhesive comprises a polyester resin.

20. The heat-transfer label as claimed in claim 19 wherein said heat-activatable adhesive further comprises a wax.

21. The heat-transfer label as claimed in claim 20 wherein said wax is a paraffinic wax.

22. The heat-transfer label as claimed in claim 4 wherein said protective lacquer layer comprises a phenoxy resin.

23. The heat-transfer label as claimed in claim 1 wherein said support portion further comprises a second release coating, said second release coating being positioned under said carrier.

24. The heat-transfer label as claimed in claim 23 wherein said second release coating is substantially identical in composition to said first release coating.

25. The heat-transfer label as claimed in claim 1 wherein said carrier and said first release coating are optically clear.

26. A heat-transfer label, said heat-transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a heat-activatable adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of heat and pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating having a carbon content (by atomic %) of about 90 to 99.9% and an oxygen content (by atomic %) of about 0.1 to 10%, as measured by X-ray photoelectron spectroscopy.

27. The heat-transfer label as claimed in claim 26 wherein said first release coating has a carbon content (by atomic %) of about 97% and an oxygen content (by atomic %) of about 3%, as measured by X-ray photoelectron spectroscopy.

28. The heat-transfer label as claimed in claim 26 wherein said first release coating exhibits a release value of about 70-350 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

29. The heat-transfer label as claimed in claim 28 wherein said first release coating exhibits a release value of about 125-200 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

30. The heat-transfer label as claimed in claim 26 wherein said first release coating has a thickness of about 0.01 to 10 microns.

31. The heat-transfer label as claimed in claim 30 wherein said first release coating has a thickness of about 0.02 to1 micron.

32. The heat-transfer label as claimed in claim 31 wherein said first release coating has a thickness of about 0.1 micron.

33. The heat-transfer label as claimed in claim 26 wherein said carrier is made of a polymer selected from the group consisting of polyesters, polyolefins and polyamides.

34. The heat-transfer label as claimed in claim 33 wherein said first release coating is made by (i) applying to the carrier in its amorphous or semi-oriented state a composition comprising (a) a functionalized α-olefin containing copolymer and (B) a crosslinking agent; and (ii) reacting said composition with the carrier during uniaxial or biaxial stretching and heat setting.

35. The heat-transfer label as claimed in claim 26 wherein said support portion further comprises a second release coating, said second release coating being positioned under said carrier.

36. The heat-transfer label as claimed in claim 35 wherein said second release coating is substantially identical in composition to said first release coating.

37. The heat-transfer label as claimed in claim 26 wherein said carrier and said first release coating are optically clear

38. A transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a pressure-sensitive adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating having a total surface energy of about 25 to 35 mN/m, of which about 0.1 to 4 mN/m is polar surface energy.

39. The transfer label as claimed in claim 38 wherein said first release coating has a total surface energy of about 30 mN/m, of which about 1.3 mN/m is polar surface energy.

40. The transfer label as claimed in claim 38 wherein said first release coating is in direct contact with said transfer portion.

41. The transfer label as claimed in claim 38 wherein said transfer portion further comprises a protective lacquer layer, said ink design layer being positioned over said protective lacquer layer, said first release coating being in direct contact with said protective lacquer layer.

42. The transfer label as claimed in claim 38 wherein said first release coating has a thickness of about 0.01 to 10 microns.

43. The transfer label as claimed in claim 42 wherein said first release coating has a thickness of about 0.02 to1 micron.

44. The transfer label as claimed in claim 43 wherein said first release coating has a thickness of about 0.1 micron.

45. The transfer label as claimed in claim 38 wherein said first release coating has a carbon content (by atomic %) of about 90 to 99.9% and an oxygen content (by atomic %) of about 0.1 to 10%, as measured by X-ray photoelectron spectroscopy.

46. The transfer label as claimed in claim 45 wherein said first release coating has a carbon content (by atomic %) of about 97% and an oxygen content (by atomic %) of about 3%, as measured by X-ray photoelectron spectroscopy.

47. The transfer label as claimed in claim 38 wherein said carrier is made of a polymer selected from the group consisting of polyesters, polyolefins and polyamides.

48. The transfer label as claimed in claim 38 wherein said carrier is made of a polymer selected from the group consisting of polyethylene terephthalate and polyethylene napthylene.

49. The transfer label as claimed in claim 38 wherein said carrier is made of a polymer selected from the group consisting of polyethylene and polypropylene.

50. The transfer label as claimed in claim 49 wherein said first release coating is made by (i) applying to the carrier in its amorphous or semi-oriented state a composition comprising (a) a functionalized α-olefin containing copolymer and (B) a crosslinking agent; and (ii) reacting said composition with the carrier during uniaxial or biaxial stretching and heat setting.

51. The transfer label as claimed in claim 50 wherein said functionalized α-olefin containing copolymer is an acid functionalized α-olefin containing copolymer.

52. The transfer label as claimed in claim 51 wherein said acid functionalized α-olefin containing copolymer is selected from the group consisting of ethylene/acrylic acid copolymers; ethylene/methacrylic acid copolymers; ethylene/vinylacetate/acrylic acid terpolymers; ethylene/methacrylamide copolymers; ethylene/glycidyl methacrylate copolymers; ethylene/dimethylaminoethyl methacrylate copolymers; ethylene/2-hydroxyethyl acrylate copolymers; and propylene/acrylic acid copolymers.

53. The transfer label as claimed in claim 52 wherein said crosslinking agent is selected from the group consisting of amino formaldehyde resins, polyvalent metal salts, isocyanates, blocked isocyanates, epoxy resins and polyfunctional aziridines.

54. The transfer label as claimed in claim 40 wherein said protective lacquer layer comprises a phenoxy resin.

55. The transfer label as claimed in claim 38 wherein said support portion further comprises a second release coating, said second release coating being positioned under said carrier.

56. The transfer label as claimed in claim 55 wherein said second release coating is substantially identical in composition to said first release coating.

57. A transfer label, said transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a pressure-sensitive adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating having a carbon content (by atomic %) of about 90 to 99.9% and an oxygen content (by atomic %) of about 0.1 to 10%, as measured by X-ray photoelectron spectroscopy.

58. A transfer label as claimed in claim 57 wherein said first release coating has a carbon content (by atomic %) of about 97% and an oxygen content (by atomic %) of about 3%, as measured by X-ray photoelectron spectroscopy.

59. The transfer label as claimed in claim 57 wherein said first release coating has a thickness of about 0.01 to 10 microns.

60. The transfer label as claimed in claim 57 wherein said carrier is made of a polymer selected from the group consisting of polyesters, polyolefins and polyamides.

61. The transfer label as claimed in claim 60 wherein said first release coating is made by (i) applying to the carrier in its amorphous or semi-oriented state a composition comprising (a) a functionalized α-olefin containing copolymer and (B) a crosslinking agent; and (ii) reacting said composition with the carrier during uniaxial or biaxial stretching and heat setting.

62. The transfer label as claimed in claim 57 wherein said support portion further comprises a second release coating, said second release coating being positioned under said carrier.

63. The transfer label as claimed in claim 62 wherein said second release coating is substantially identical in composition to said first release coating.

64. A method of decorating an article, said method comprising the steps of:

(a) providing the heat-transfer label of claim 1; and

(b) transferring said transfer portion from said support portion to the article.

65. The method as claimed in claim 64 wherein the article is a container made of a material selected from the group consisting of glass, a hard plastic (e.g., polypropylene, polystyrene, styrene acrylonitrile, polyethylene terephthalate and PEN) and metal.

66. The method as claimed in claim 65 wherein the article is a glass container.

67. A method of decorating an article, said method comprising the steps of:

(a) providing the heat-transfer label of claim 26; and

(b) transferring said transfer portion from said support portion to the article.

68. The method as claimed in claim 67 wherein the article is a container made of a material selected from the group consisting of glass, a hard plastic (e.g., polypropylene, polystyrene, styrene acrylonitrile, polyethylene terephthalate and PEN) and metal.

69. The method as claimed in claim 68 wherein the article is a glass container.

70. A method of decorating an article, said method comprising the steps of:

(a) providing the transfer label of claim 38; and

(b) transferring said transfer portion from said support portion to the article.

71. The method as claimed in claim 70 wherein the article is a container made of a material selected from the group consisting of glass, a hard plastic (e.g., polypropylene, polystyrene, styrene acrylonitrile, polyethylene terephthalate and PEN) and metal.

72. The method as claimed in claim 71 wherein the article is a glass container.

73. A method of decorating an article, said method comprising the steps of:

(a) providing the transfer label of claim 57; and

(b) transferring said transfer portion from said support portion to the article.

74. The method as claimed in claim 73 wherein the article is a container made of a material selected from the group consisting of glass, a hard plastic (e.g., polypropylene, polystyrene, styrene acrylonitrile, polyethylene terephthalate and PEN) and metal.

75. The method as claimed in claim 74 wherein the article is a glass container.

76. A heat-transfer label, said heat-transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a heat-activatable adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of heat and pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating exhibiting a release value of about 70-350 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

77. The heat-transfer label as claimed in claim 76 wherein said first release coating exhibits a release value of about 125-200 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

78. A transfer label, said transfer label comprising:

(a) a transfer portion, said transfer portion comprising

(i) an ink design layer, and

(ii) a pressure-sensitive adhesive layer over said ink design layer; and

(b) a support portion, said transfer portion being positioned over said support portion for transfer of the transfer portion from the support portion to an article under conditions of pressure, said support portion comprising

(i) a carrier, and

(ii) a first release coating positioned over said carrier, said first release coating being made of a non-wax, non-silicone, thermoset release material, said first release coating separating cleanly from said transfer portion with no visually discernible portion of said first release coating being transferred to the article along with said transfer portion, said first release coating exhibiting a release value of about 70-350 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.

79. The transfer label as claimed in claim 78 wherein said first release coating exhibits a release value of about 125-200 g/inch when an adhesive film which has been applied thereto is removed therefrom at a 15 degree angle using Scotch 810 tape at a rate of 12 in/min at room temperature.